Minimizing Unplanned Extubations in the Intensive Care Nursery

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Graduate Nurse Residency Program

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A3 Overview

A3 for Problem Solving

Title: Reducing Unplanned Extubations in the Intensive Care Nursery

Date: 1/1/2018

Owner: ICM graduate nurse resident team

Department: Director Signature: 

ET Scholar: Dr. AIR

Overview of Problem

Context and Background

Unplanned extubations (UE) are a common occurrence in the intensive care nursery (ICU). They can lead to significant morbidity and mortality, as well as increased hospital lengths of stay, costs, and potential legal implications. The team at Children’s Mercy Kansas City (CMKC) has identified UE as a key safety concern.

Statement of the Problem

The current rate of UE at CMKC is 50%, with 1 in 5 extubations leading to an unplanned extubation (UE). The team aims to reduce this rate to 20% by February 2019.

Objectives

- Decrease the rate of UE by 30%
- Implement and sustain changes to reduce UE rates

Solution

The team has identified the following solutions to address the problem:

1. **Enact Changes**
   - Implement new policies and procedures to improve extubation practices.
   - Train staff on the new policies and procedures.

2. **Monitor and Evaluate**
   - Regularly review extubation rates and document outcomes.
   - Continuously assess the effectiveness of interventions.

3. **Communicate and Collaborate**
   - Engage all stakeholders in the process.
   - Foster open communication between nurses, doctors, and other healthcare providers.

4. **Support and Resources**
   - Provide additional training and resources to support staff.
   - Ensure access to necessary equipment and supplies.

Timeline

- **Month 1:** Baseline data collection
- **Month 2:** Implementation of new policies
- **Month 3:** Initial assessment of results
- **Month 4:** Ongoing monitoring and evaluation

Outcomes

- Reduction in UE rates by 30%
- Improved patient outcomes and satisfaction
- Increased staff confidence and competence in extubation practices

Challenges and Roadblocks

- Resistance to change among staff
- Resource limitations
- Difficulty in measuring the impact of new policies

Next Steps

- Continue monitoring UE rates and outcomes
- Conduct follow-up training sessions
- Review and refine policies as needed

Conclusion

The team at CMKC is committed to reducing unplanned extubations and improving patient outcomes. By implementing targeted interventions and continuously monitoring results, they aim to reduce UE rates and create a safer environment for patients.
Clarify the Problem

Patients that experience an unplanned extubation (UPE) in the Intensive Care Nursery (ICN) can have complications such as increased length of stay, code events, airway trauma, hypoxemia, and pulmonary injury. The lack of standardization of Endotracheal Tube (ETT) management is a contributing factor to increased UPEs. By ensuring compliance of a standardized process for ETT management, we hope to achieve a reduction in UPEs in the Children’s Mercy ICN. The current goal for the ICN at Children’s Mercy is <1 UPE out of 100 ventilator days and the ICN year to date current rate of UPE is 1.2.
Breakdown the Problem

Pareto Chart for UPE
2018 (n=44)

UPE Cause
- Number of Occurrence
- Cumulative %

Children's Mercy
KANSAS CITY
Set a Target

- Target goal is to increase holding of ET tube during an x-ray from 48% to 70% by February 1, 2019.
Inconsistent application of ET tube expectations
- ET tube will be held during chest X-rays
- Location of ET tube during X-rays will be documented real-time

**UPE BY CAUSE**

- Patient specific: 21%
- Neobar issues: 18%
- Unwitnessed: 16%
- Retaping: 16%
- Tape issues: 11%
- Procedures: 7%
- Repositioning: 7%
- Holding: 2%
- Secretions/Emesis: 2%

Jan – Oct 15, 2018 (n=44)
No UPE November

Education & Training in the ICN

- Practice changes
- Expectations for chest x-ray
- No UPE toolkit
- Charting change
- Education reminders

Children's Mercy
KANSAS CITY
Develop and Implement Countermeasures

**AIM STATEMENT**
Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

**KEY DRIVERS**
- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

**INTERVENTIONS**
- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
- Signage
- RT present at bedside for X-ray
- Educate radiology technicians
Develop and Implement Countermeasures

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## Develop and Implement Countermeasures

### No UPE November: Holding ETT during Chest Tube Audit

<table>
<thead>
<tr>
<th>Date:</th>
<th>Bedspace:</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was a CXR done during shift?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, was ETT held during CXR?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>If held, by whom?</td>
<td>RN</td>
<td>RT</td>
</tr>
<tr>
<td>NNP</td>
<td>MD</td>
<td></td>
</tr>
<tr>
<td>If CXR was done, was documentation completed noting location of ETT during CXR?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>For all ETT patients:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does RN know position of ETT is to be documented for all CXRs?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Does RN know where to document position of ETT for CXRs?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
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Signage for ETT Cards

Design for No UPE November

Hold tube for every x-ray

Design #2 for everyday use

Hold tube for every x-ray
Develop and Implement Countermeasures

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Intubated patients

Please make sure an RT and RN are present to verify tube placement and to hold the tube during every x-ray.
Check Results and Process

ETT held during X-ray:
- September: 48%
- October: 50%
- November: 85%
- December: 94%
- January: 91%

Documentation indicating location during X-ray:
- September: 79%
- October: 88%
- November: 98%
- December: 100%
- January: 86%
Standardize and Follow Up

- The process needs to be standardized to implement safe management of all patients.
- We followed all intubated patients to collect our data.
- Unit committee will continue to audit and monitor compliance to standards. If compliance decreases, then unit will re-educate or re-approach and find a different process that is effective. If successful, we will share our knowledge and spread to other populations.


Questions